

M o n i t h l y M a r i n e B i o t o x i n R e p o r t January 2003

Technical Report No. 03-10

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of January 2003. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

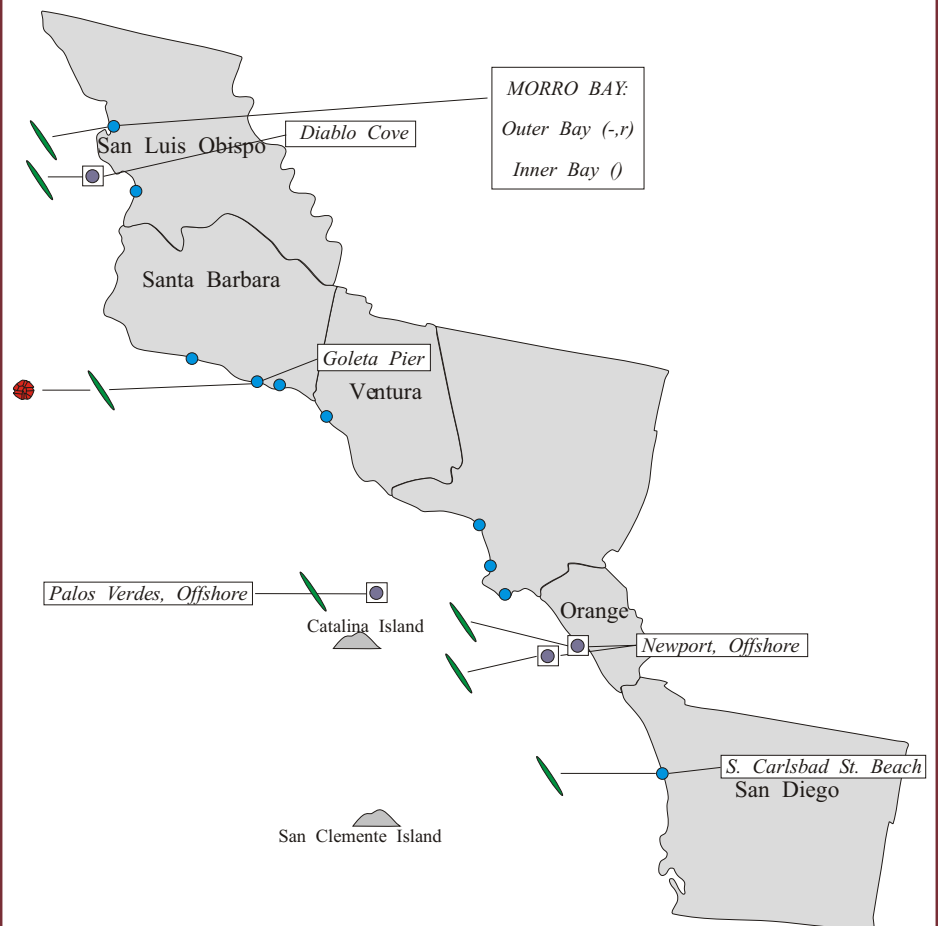
JANUARY:

Southern California Summary:

Very low numbers of *Alexandrium* were detected at Goleta Pier at the end of January (Figure 1).

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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during January, 2003.



Relative Abundance of Known Toxin Producers

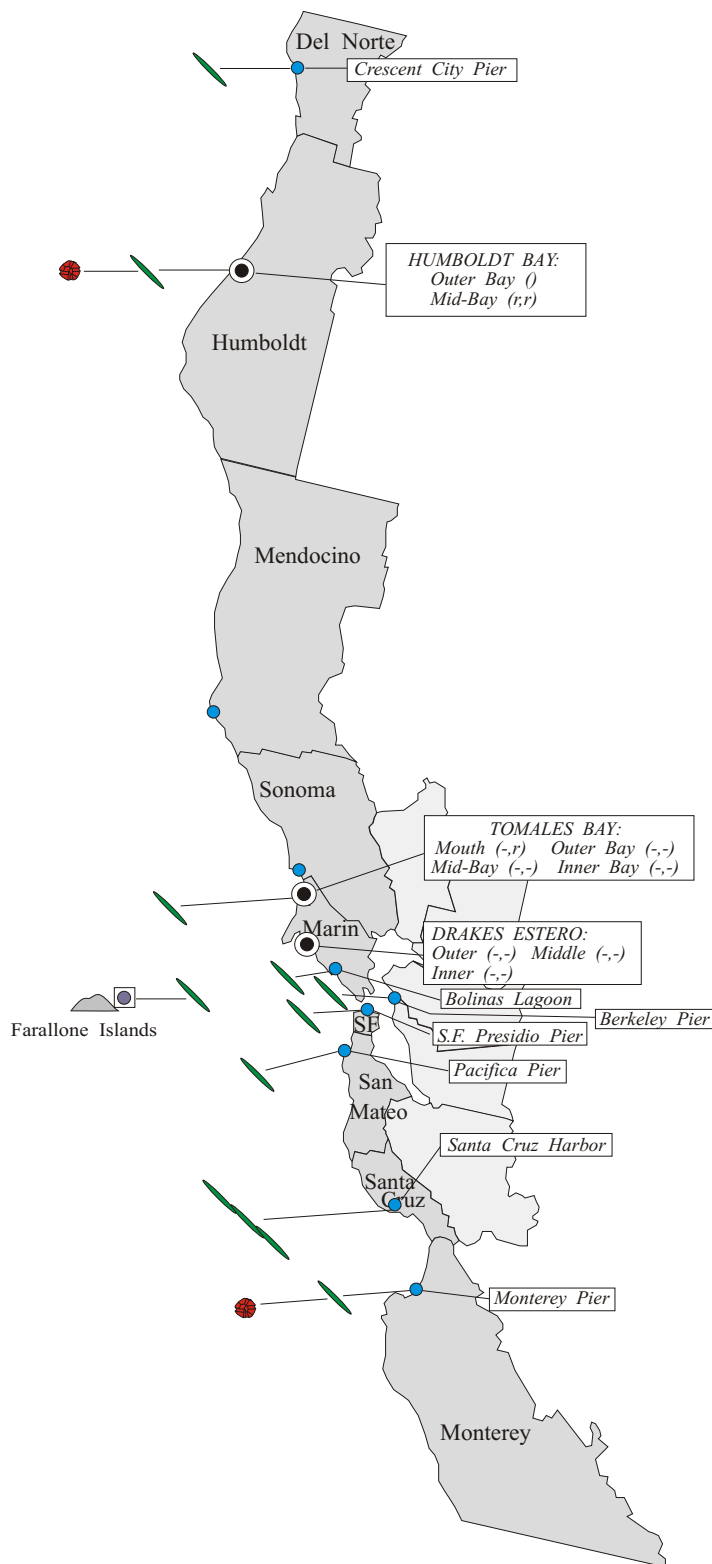
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (less than 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:
(a,p) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 2. Distribution of toxin-producing phytoplankton in Northern California during January, 2003.



(Continued from Page 1)

This dinoflagellate was absent from all other sampling sites throughout the month. PSP toxins were not detected in shellfish samples from any Southern California sampling site during January (Figure 3).

A low relative abundance of *Pseudo-nitzschia* was observed along most of the southern California coast during January (Figure 1). The number of cells present was quite low at all stations.

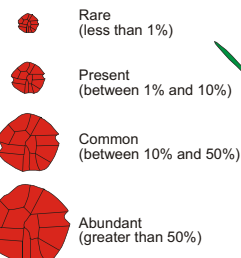
The only Southern California sample analyzed for domoic acid in January was a sample of lobster viscera from Anacapa Island, which contained a very high level (110 ppm) of this toxin (Figure 3). Elevated levels of domoic acid appear to have persisted in lobster viscera for many months as a result of the *Pseudo-nitzschia* bloom in the spring of 2002. Thanks to volunteer Bill Weinerth, whose continued efforts at obtaining lobster samples has allowed us to gather this information.

Although most samples contained sparse amounts of phytoplankton in January, samples collected offshore of San Luis

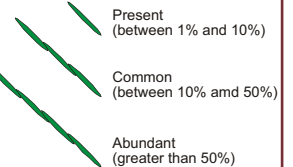
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Relative Abundance of Known Toxin Producers

Alexandrium Species



Pseudo-nitzschia Species



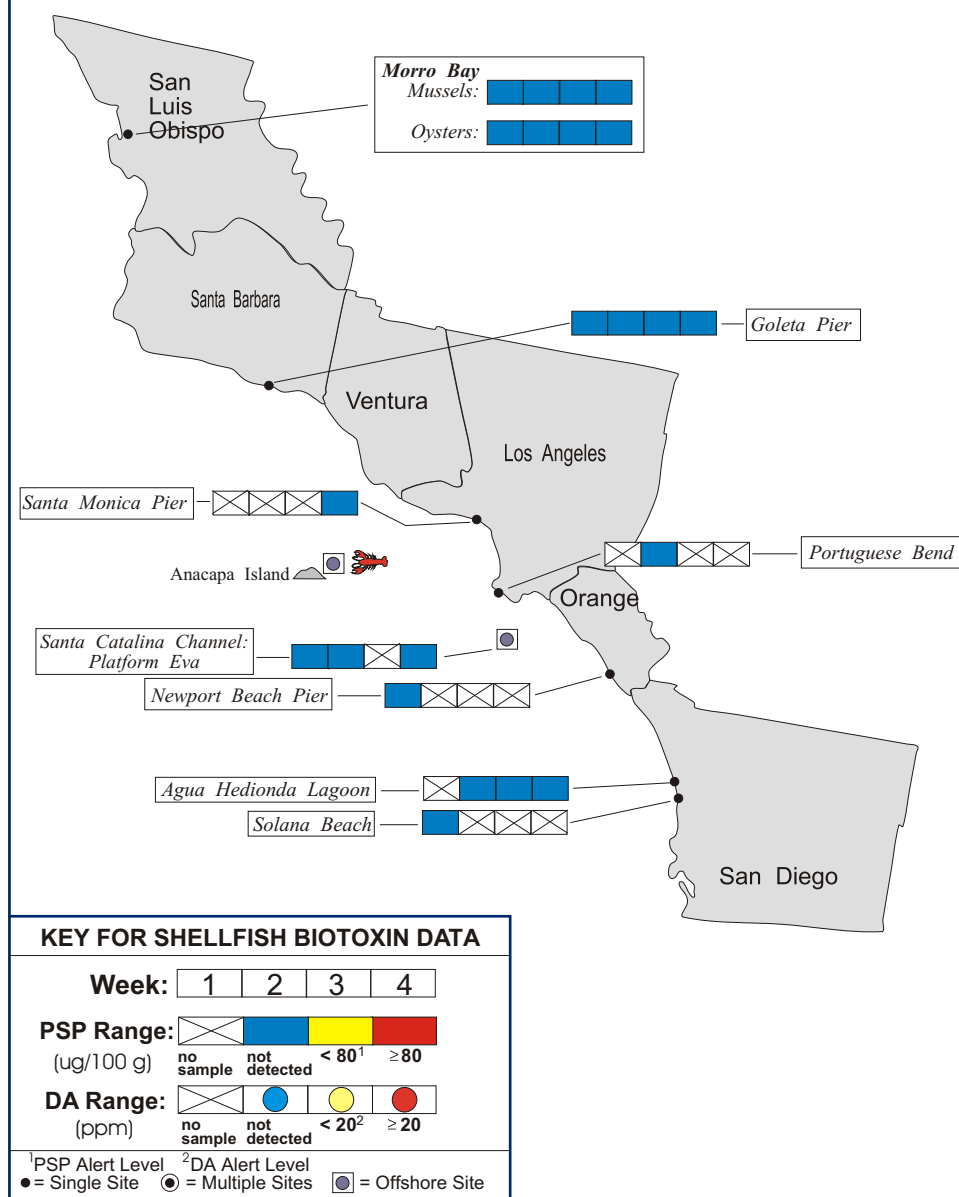
MONTHLY SAMPLING STATIONS:

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Figure 3. Distribution of shellfish biotoxins in Southern California during January, 2003.



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Obispo by Tenera Environmental contained a high density of the diatom *Chaetoceros* spp. Farther south at Goleta Pier in Santa Barbara there was an equal mix of diatoms (*Chaetoceros* spp.) and dinoflagellates (*Ceratium* spp.) in samples collected by the U.C. Santa Barbara Marine Science Institute. Continuing southward the only dense assemblage of phytoplankton observed was offshore of Newport Beach, where the dinoflagellates dominated (*Gonyaulax polyedra* and *Ceratium furca*) samples collected by the Orange County Sanitation District.

While none of these species are toxin producers, by tracking the general trends in phytoplankton species composition, together with basic oceanographic data and satellite imagery, we hope to gain insight into trends related to the occurrence of our toxin-producing species. As space allows, we will try to include a summary of this information in future reports.

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:
(510) 412-4635

For Recorded Biotoxin Information Call:
(800) 553 - 4133

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Northern California Summary:

Very low numbers of *Alexandrium* were observed at sites in Humboldt Bay and Monterey Bay during the first week of January (Figure 2). PSP toxins were not detected in shellfish samples from any Northern California locations during January (Figure 4).

Despite winter conditions, there was an abundance of diatoms in samples submitted by the Gulf of the Farallones National Marine Sanctuary from offshore of San Francisco near the Farallone Islands, particularly *Chaetoceros spp.* and *Ditylum spp.* Diatoms were also abundant inside San Francisco Bay near the Golden Gate. Samples submitted from the Presidio Pier by longtime program volunteer Eugenia McNaughton contained a large number of centric diatoms and the diatom *Ditylum spp.*



We've Moved!

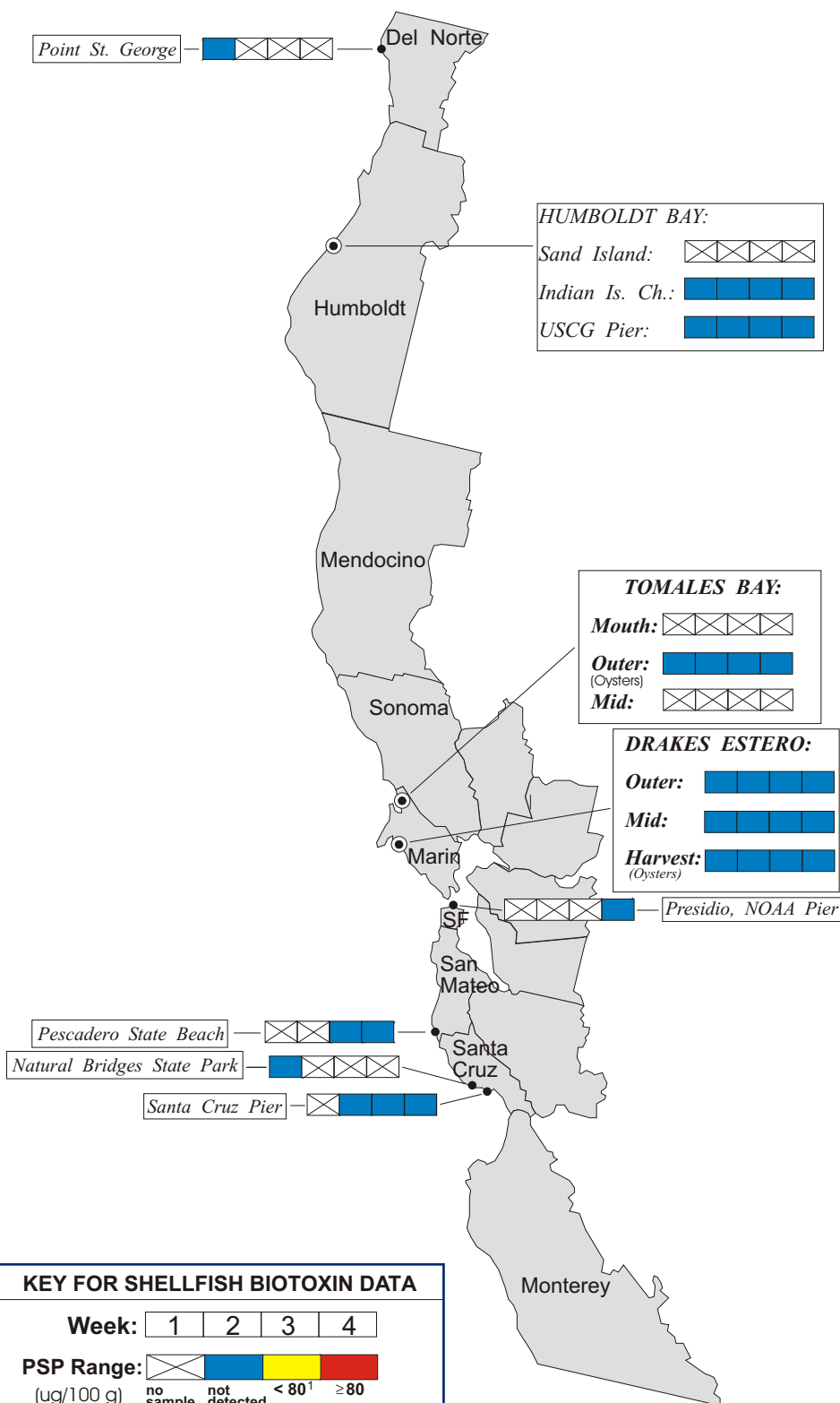
The Berkeley office of the California Department of Health Services Marine Biotoxin Monitoring Program has moved to the Richmond Laboratory Campus. Our new mailing address is:

California Dept. of Health Services
850 Marina Bay Parkway, Room G165
Richmond, CA 94804

Telephone: (510) 412-4635
Fax: (510) 412-4637



Figure 4. Distribution of shellfish biotoxins in Northern California during January, 2003.



KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

PSP Range: [X][][][][]
(ug/100 g) no sample not detected < 80¹ ≥ 80

DA Range: [X][][][][]
(ppm) no sample not detected < 20² ≥ 20

¹PSP Alert Level ²DA Alert Level
● = Single Site ● = Multiple Sites ■ = Offshore Site

M o n t h l y M a r i n e B i o t o x i n R e p o r t

An Explanation of Our New Format:

Hopefully you have noticed that our Quarterly Marine Biotoxin Monitoring Report has changed. The most significant change perhaps is that the report is no longer quarterly but monthly. This change was partly to keep the file to a manageable size for electronic distribution via email and our web site. In turn, this allows us the opportunity to expand the content of the report to include photographs and other graphics. We hope you enjoy the new format and find it informative and would appreciate any feedback or suggestions you might have.

Table 1. California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during January, 2003.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	8
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Hog Island Oyster Company	3
	Johnson Oyster Company	16
	Marin Oyster Company	4
San Francisco	San Francisco County Health Department	1
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	U.C. Santa Cruz	1
	Santa Cruz County Environmental Health Department	2
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
Santa Barbara	U.C. Santa Barbara Marine Science Institute	4
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	2
Orange	Orange County Health Care Agency	1
	Ecomar, Inc.	3
San Diego	Carlsbad Aquafarms, Inc.	5
	CDHS Volunteer (Paul Sims)	1

PHYTOPLANKTON GALLERY



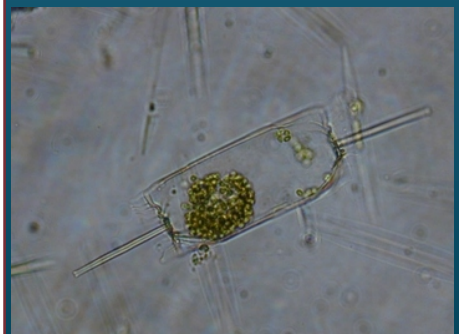
Chaetoceros, a common diatom observed along the California coast in January.

*"A life on the ocean wave!
A home on the rolling deep,
Where the scattered waters rave,
And the winds their revels keep!"*

Attributed to Epes Sargent (1813-1881), "Life on the Ocean Wave" from "Bartlett's Familiar Quotations".



Ceratium furca, a common dinoflagellate observed along the Southern California coast in January.



Ditylum, a common diatom observed along the Northern California coast in January.

Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during January, 2003.

QUARANTINES:

There were no special quarantines or health advisories in place in January 2003.

California implements an annual quarantine each year from May 1 through October 31, which applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. All commercial shellfish growers certified by the State of California are required to submit routine samples for PSP toxin analysis.

Consumers of Washington clams, also known as butter clams, are cautioned to eat only the white meat. We recommend that persons engaged in the sport-harvesting of any bivalve shellfish (e.g., mussels, clams, scallops) contact the Department's "Shellfish Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity. Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera). Only the white meat of clams and scallops should be prepared for human consumption.



COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	3
Humboldt	Coast Seafood Company	4
Mendocino	CDHS Volunteer (Amy Johnson)	2
Sonoma	Bodega Marine Laboratory	1
Marin	California Department of Fish and Game	2
	CDHS Volunteer (Brent Anderson, Richard Plant, Cal Strobel)	7
	Johnson Oyster Company	16
Alameda	City of Berkeley Shorebird Nature Center	1
San Francisco	CDHS Volunteer (Eugenia McNaughton)	4
	Gulf of the Farallones National Marine Sanctuary	1
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	San Lorenzo Valley High School	3
Monterey	CDHS Volunteer (Jerry Norbn)	3
San Luis Obispo	CDHS Volunteer (Rene and Auburn Atkins)	3
	Morro Bay National Estuary Program	2
	Tenera Environmental	3
Santa Barbara	U.C. Santa Barbara Marine Science Institute	5
	California Department of Parks and Recreation	2
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	2
	Los Angeles County Sanitation District	3
	Los Angeles Regional Water Quality Control Board	1
Orange	Orange County Sanitation District	7
San Diego	San Diego County Environmental Health Department	3

Why Is Phytoplankton Monitoring Important?



Phytoplankton monitoring provides valuable information on the presence and abundance of the toxin-producing species, providing valuable feedback for shellfish monitoring and biotoxin analysis.



The volunteer monitoring data helps us track general trends in the phytoplankton community.



By following these trends we can gain insight into the potential risk of a toxic bloom.



Advanced warning of a possible toxic bloom allows us to alert program participants and the public.